

IN THE US PATENT AND TRADEMARK OFFICE

Application Number: 10/569,317
International Appl. No.: PCT/CN2004/000955
I.A Filing Date: 08/16/2004
Applicant: Jiecai Gan
Application Title: Exhausting apparatus with an air
dividing case for water closet
Examiner: Younkins, Karen L
Art Unit: 3751
Attorney Docket NFE-105

AMENDMENT

Commissioner for Patent
P.O. Box 1450, Alexandria, VA 22313-1450

Sir:

In response to the Office action of March 11, 2010 please
amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of
claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 5 of this paper.

Amendment to the Claims:

Please delete the claims as filed before and replace it with the following claims:

What is claimed is:

Claims 1-10 (canceled)

11. (currently amended) An exhausting apparatus with an air dividing case for water closet comprising:

an air dividing case for distributing air ~~displacement volume drawn from two separate compartments by a one~~ exhaust fan having an inner chamber with an outlet on a top of the air dividing case and two inlets, one inlet is connected with a water closet in a toilet through a duct, other inlet is ~~located on a ceiling of the toilet and~~ opened to the toilet;

each inlet having an air valve for regulating air ~~displacement volume~~; an exhaust fan being fixed on the top of the air dividing case, an inlet of the exhaust fan is located on the outlet of said inner chamber and fixed thereon, an outlet of the exhaust fan is ~~connected~~ opened to outdoor through a duct;

said inner chamber has an air separate plate ~~inside it therein~~ to divide said inner chamber into two half-chambers and ~~to divide~~ said inlet of the exhaust fan into two half-inlets, one half-chamber with one half-inlet are connected with one of the separate compartments that is the water closet and another half-chamber with another half-inlet are connected with another one that is the toilet, thereby the distribution of exhausting air ~~displacement volume for drawn from two separate compartments by one~~ the exhaust fan is realized.

Claims 12-18 (canceled)

19. (previously amended) the exhausting apparatus with an air dividing case for water closet of claim 11 wherein said water closet includes a water tank, a toilet bowl located under the water tank and a T shaped pipe tee, an upper end

of the pipe tee is connected to a bottom of the water, a bottom end of the pipe tee is connected to the toilet bowl and a middle end of the pipe tee is connected to the inlet for water closet of the air dividing case through a duct.

20. (canceled)

21. (currently amended) The exhausting apparatus with an air dividing case for water closet of claim 11 wherein a overflow tube in water tank of a water closet is connected ~~through a duct to~~ with the inlets ~~for water closet~~ of the air dividing case for water closet through a duct.

Claims 22-28 (canceled)

29. (previously added) The exhausting apparatus with an air dividing case for water closet of claim 11 wherein the air valve of the inlet for water closet is a butterfly air vent valve, the air valve of the inlet for toilet is a gate air vent valve.

30. (new) the exhausting apparatus with an air dividing case for water closet of claim 11 wherein said water closet includes a water tank, a toilet bowl located under the water tank, a hole is opened on the back of the toilet bowl, the hole is connected with the inlet for water closet of the air dividing case through a duct.

REMARKS:

In Respect to the Specification

Regarding Actions 1 to 6:

The applicant will provide a substitute specification and abstract in proper idiomatic English and in compliance with 37 CFR 1.52(a) and (b) after the amended claims are approved. The applicant is an individual with limited financial ability. He wants to reduce the prosecution coast within his ability and hope get an allowance from Examiner.

In Respect to Claims Rejections - 35 USC 112

Regarding Action 9:

"Other inlet is located on a ceiling of the toilet and opened to the toilet" in claim 1 is amended as "other inlet is opened to the toilet" and which is supported by:

In this invention, it is possible to establish an inlet in inner chamber of air dividing case and to set an air separate plate inside it, which divides the inner chamber into two chambers that does not interlinked each other, namely one chamber to the water closet and other chamber to the toilet. (Specification, P 2, second paragraph from bottom)

The T shaped pipe tee is the same of the T-type rear exhaust hole shown in the Figs. 6 and 7. No new matter is introduced.

The "pip tee" recited in claim 19 is supported by the Fig. 7 and Embodiment 2 (Specification, P 5). Also, please refer the attached Illustration 2.

The toilet ceiling is shown in the Figs. 2 and 3

"The chamber to the room 412 has at its bottom a through hole 45 toward to the toilet" (Specification, P 5 lines 4 from bottom to line 3 from bottom). Obviously, the chamber is on the toilet ceiling.

Regarding Acton 10:

The claim 11 is fully supported by Fig. 2 and the embodiment 2.

"while the inner chamber 41 is provided with an air separate plate 47 which divides the inner chamber 41 into two chambers that does not interlinked each other, namely one chamber to the water closet 411 and another chamber to the room 412" (Specification, P 5 lines 17 to 20).

Regarding Action 11:

The butterfly air vent valve is supported by the valve 44 in the Figs. 2 and 3. The valve 44 shown in the drawings is a butterfly air vent valve according to a common knowledge in the ventilation technical field.

Regarding Action 14:

In claim 11 the "distribution of exhausting air displacement" is amended as "distributing air volume drawn from two separate compartments".

"an outlet of the exhaust fan is connected to outdoor through a duct" is amended as "an outlet of the exhaust fan is opened to outdoor through a duct."

The claim 21 is amended as: "The exhausting apparatus with an air dividing case for water closet of claim 11 wherein an overflow tube in water tank of a water closet is connected with the inlet of the air dividing case for water closet through a duct."

Regarding Action 15:

In the claim 11 the water closet is in the toilet room. One exhaust fan works for the water closet and the toilet room.

In respect to Claim Rejections - 35 USC 103

"To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir.1991). See MPEP 2143-2143.03 for decisions pertinent to each of these criteria."

"Note that the omission of an element and retention of its function is an indicia of unobviousness. In re Edge, 359 F.2d 896, 149 USPQ 556 (CCPA 1966)." MPEP 2144.04

Regarding Action 18: claims 11, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 5010600 to Prisco in view of U.S. patent No. 5029316 to Fernald, Sr.(Fernald). Please see the following reply:

Regarding Action 19:

The claim 11 has important differences from Prisco in view Fernald as follows:

an air dividing case for distributing air volume drawn from two separate compartments by one exhaust fan having an inner chamber with an outlet on a top of the air dividing case and two inlets, one inlet is connected with a water closet in a toilet through a duct, other inlet is opened to the toilet;

each inlet having an air valve for regulating air volume; an exhaust fan being fixed on the top of the air dividing case, an inlet of the exhaust fan is located on the outlet of said inner chamber and fixed thereon, an outlet of the exhaust fan is opened to outdoor through a duct;

said inner chamber has an air separate plate therein to divide said inner chamber into two half-chambers and to divide said inlet of the exhaust fan into two half-inlets, one half-chamber with one half-inlet are connected with one of the separate compartments that is the water closet and another half-chamber with another half-inlet are connected with another one that is the toilet, thereby the distribution of exhausting air volume drawn from two separate compartments by one exhaust fan is realized.

The features with yellow color are different from the cited references.

The detail differences between claim 11 and Prisco:

Claim 11	Prisco
Only one exhaust fan for toilet and water set	Two exhaust fans, one fan for toilet, another for water set
One air dividing case	Two air dividing cases

A separate plate to divide the inlet of the exhaust fan into two half-inlets	A separate plate to separate two exhaust fans
One air dividing case for toilet and water set	One air dividing case for toilet and other dividing case for water set
The exhaust system for toilet and water set needs one exhaust fan only	The exhaust system for toilet and water set needs two exhaust fans.

Because having the above-mentioned new features the exhausting apparatus of claim 11 can use one exhaust fan only to exhaust the air both from the water closet and from the toilet. Therefore, the structure of the exhausting apparatus is great simplified and the cost is great reduced.

Neither Prisco nor Fernald teaches the above-mentioned new features.

Prisco's embodiment has two exhaust fans, one for water closet and other for toilet. The claim 11 only has one exhaust fan.

The air separate plate in Prisco is to separate two exhaust fans for the result that one for toilet and other for water closet. In the claim 11 the air separate plate is to separate the inlet of one exhaust fan as two half-inlets, one for water closet and other for toilet, therefore to achieve the purpose that use one exhaust fan to complete the task which need two exhaust fans in Prisco.

It is clear that one of ordinary skill in the art is impossible to modify the Prisco's embodiment (one exhaust

fan for toilet and another one for water closet) to get the exhausting apparatus of claim 11 (one exhaust fan for both toilet and water closet). The search made by Examiner finds many close references, but no one of the references discloses an exhaust fan serves toilet and water closet both, this fact-self verifies the exhausting apparatus of claim 11 is nonobvious to a one of ordinary skill in the art.

Fernald discloses an air valve (36), which is a one way valve. The function of the air valve (36) is to prevent the entry of air into the inner chamber rather than to regulate the flux of the valve. As mentioned above the air valve in claim 11 is a regulation valve for air volume. When the apparatus is in operation if a user sitting on the water closet feels the air flux into the water closet is too strong and his feeling is uncomfortable, the user can turn the air valve (44) to decrease or increase the air flux into the water closet. Fernald's valve is not the valve of claim 11 for the present invention.

The above-mentioned facts fully verifies that there no some suggestion or motivation, either in the Prisco in view Fernald or in the knowledge generally available to one of ordinary skill in the art, to modify or to combine Prisco in view Fernald teachings. Second, there is no a reasonable expectation of success (in Prisco embodiment must use two exhaust fans rather than one). Finally, the Prisco in view Fernald does not teach or suggest all the claim limitations (air dividing case having air separate plate). The teaching or suggestion to make the claimed combination and the reasonable expectation of success cannot both be found in the Prisco in view Fernald, and not based on applicant's disclosure.

Therefore, the claim 11 is patentable under 35 U.S.C. 103(a) over U.S. patent 5010600 to Prisco in view of U.S. patent No. 5029316 to Fernald, Sr. (Fernald):

The applicant respectfully studies the comments in the Action 19. However, the applicant does not agree with Examiner in six places. Please see the attached Illustration 1, in which 6 places are underlined by red line. The applicant's comments are written in red.

The Illustration 2 shows the Fig. 7 of claim 1 of present invention and Fig. 1 of Barry.

19. Regarding claim 11, Prisco discloses, with attention drawn particularly the embodiment disclosed in figure 7, an exhausting apparatus with an air dividing case (surrounding compartments 61 and 65) for a water closet (10) comprising an air dividing case having an inner chamber (61/65) with an outlet at a top of the air dividing case (see examiner annotated drawing above) and an inlet (via 63) connected with a water closet (see column 4 lines 12-14). The exhausting apparatus also includes an exhaust fan (62) with an outlet and inlet connected with the outlet of said inner chamber (see examiner annotated drawing above) that is fixed on top of the air dividing case as claimed. The outlet of the exhaust fan is connected to the outdoors through a duct (67), see column 4 lines 16-22. Further, Prisco discloses the inner chamber having through holes via the screened openings 66. The screen/'lid' covering the openings is 'moveable' on and off of the openings. The inner chamber has an 'air separate plate' inside of it, see examiner annotated drawing above. The 'air separate plate' divides the inner chamber into two chambers (61 and 65) such that one chamber (61) leads to the water closet (10). Prisco also discloses the use of the 'air separate plate' dividing the inner chamber into dual compartments may be required in rooms having a plurality of toilets, see column 4 lines 22-24. Further, the outlet is separated by the air separate plate into two parts to the extent claimed, and the apparatus is installed on a ceiling of a room housing a toilet (see figure 1). The apparatus is "open" to the toilet as it is connected to the toilet via the air system.

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Illustration 1

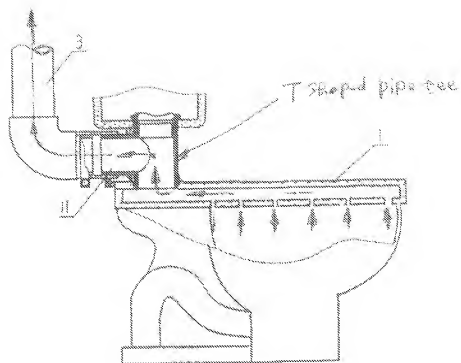


Fig. 7 of claim 1

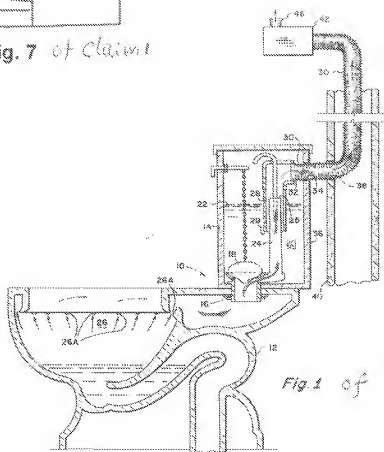


Fig. 1 of Brady

Illustration 2

Refer to Fig. 7 of the Illustration 2 the exhaust air in the water set is drawn through the T shaped pipe tee to the duct 3. Refer to Fig. 1 the exhaust air in the water set is drawn through the overflow pipe 24 to the duct 30. Obviously, the passage of the T shaped pipe tee is much bigger than the passage of the overflow pipe 24. Therefore, the resistance force for the exhaust air in the claim 1 of present invention is much lower than Barry. Therefore, the present invention has much prefer exhausting ability then the cited references.

Regarding Actions 20 and 21:

The claims 21 and 29 is a dependent claim of claim 19

Regarding Action 23:

claims 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 5010600 to Prisco in view of U.S. patent No. 5029316 to Fernald, Sr. (Fernald) and USPN 4165544 to Barry:

The claim 19 has important differences from Prisco in view Fernald and Barry as follows:

"said water closet includes a water tank, a toilet bowl located under the water tank and a T shaped pipe tee, an upper end of the pipe tee is connected to a bottom of the water, a bottom end of the pipe tee is connected to the toilet bowl and a middle end of the pipe tee is connected to the inlet for water closet of the air dividing case through a duct."

In Prisco the exhaust duct is connected to **an exhaust hole 20 which is at the seat of the water closet rather than to**

the inside of the toilet bowl. Therefore the result is not good. Also, the duct is around the seat which brings many inconveniences for user. And the appearance is not good.

In Fernald and Barry the duct goes into the water tank and connects with the toilet bowl through a discharge pipe. The way for air is narrow and sinuous, which great increases the resistance force. Therefore the exhausting force is weak and the appearance of the water tank will be destroyed.

In the claim 19 a T shaped pipe tee to connect the exhaust duct into the toilet bowl in the rear of the toilet bowl, which make the exhaust line having big inner passing way for air and avoid the sinuousness. Therefore, the resistance force is greatly reduced. The exhausting force is big and the appearance is good.

(Please see the attached Illustration 2)

The above-mentioned facts fully verifies that there no some suggestion or motivation (for T shaped pipe tee), either in the Prisco in view Fernald and Barry or in the knowledge generally available to one of ordinary skill in the art, to modify or to combine Prisco in view Fernald and Barry teachings. Second, there is no a reasonable expectation of success (in Prisco in view Fernald and Barry the air resistance force is great big). Finally, the Prisco in view Fernald and Barry does not teach or suggest all the claim limitations (T shaped pipe tee). The teaching or suggestion to make the claimed combination and the reasonable expectation of success cannot both be found in the Prisco in view Fernald and Barry, and not based on applicant's disclosure.

Therefore, the claim 19 is patentable under 35 U.S.C. 103(a) over U.S. patent 5010600 to Prisco in view of U.S. patent No. 5029316 to Fernald, Sr.(Fernald) and USPN 4165544 to Barry:

Regarding Action 25:

The applicant will provide a substitute specification and abstract in proper idiomatic English and in compliance with 37 CFR 1.52(a) and (b) after the amended claims are approved. The applicant is an individual with limited financial ability. He wants to reduce the prosecution coast within his ability and hope get an allowance from Examiner.

Regarding Action 26:

For the claim 11, one water closet in a room of toilet. The exhausting apparatus of claim 11 only uses one exhaust fan draws exhaust air from one water closet and one toilet. The exhausting apparatus of Prisco need two exhaust fans.

Regarding Action 27:

The difference between air valve 36 and the butterfly air vent valve of present invention:

As a common knowledge the air valve 36 is an **air direction valve** for controlling air direction, the butterfly air vent valve is an **air volume** valve for controlling the air volume passing the valve. The difference is obviously.

Regarding Action 28:

Please refer to Illustration 2:

In Fig. 7 the exhaust air in the water set is drawn through the T shaped pipe tee to the duct 3. In Fig. 1 the exhaust air in the water set is drawn through the overflow pipe 24 to the duct 30. Obviously, the passage of the T shaped pipe tee is much bigger than the passage of the overflow pipe 24. Therefore, the resistance force for the exhaust air in the claim 1 of present invention is much lower than Barry. Therefore, the present invention has much prefer exhausting ability then the cited references.

Regarding new added claim 30:

In fact the claim 30 is the same of the original claim 6 as filed. It is supported by the Fig. 6. The reasons for being patentable are the same as the claim 19, which have been described in the part of Regarding Action 23 of this paper.

This invention has been used in a toilet for test. When people use the toilet, no little odor is smelled. The air in the toilet is fresh.

For all of the above reasons, applicant submits that the claims are now in proper form, and that the claims all define patentably over the prior art.

Respectfully submitted,

/Tianhua Gu/

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June 9, 2010